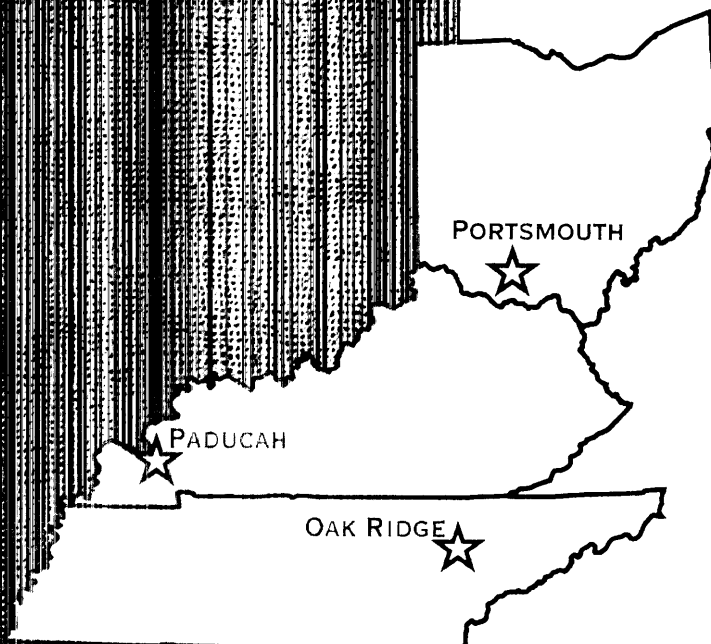




BJC/PAD-399

ENVIRONMENTAL MANAGEMENT  
& ENRICHMENT FACILITIES  
MANAGEMENT AND INTEGRATION CONTRACT

**Final Inventory/Characterization  
Report for the OS-08  
Department of Energy  
Material Storage Area at the  
Paducah Gaseous Diffusion Plant,  
Paducah, Kentucky**



MANAGED BY  
BECHTEL JACOBS COMPANY LLC  
FOR THE UNITED STATES  
DEPARTMENT OF ENERGY



This document has received the appropriate reviews  
for release to the public.

**Final Inventory/Characterization Report for the OS-08  
Department of Energy Material Storage Area (DMSA)  
at the Paducah Gaseous Diffusion Plant,  
Paducah, Kentucky**

Date Issued – September 16,2002

Prepared by  
WESKEM, LLC  
Under subcontract 23900-BA-RM005F  
Prepared for the  
US Department of Energy  
Office of Environmental Management

BECHTEL JACOBS COMPANY LLC  
managing the  
Environmental Management Activities at the  
East Tennessee Technology Park  
Oak Ridge Y-12 Plant                      Oak Ridge National Laboratory  
Paducah Gaseous Diffusion Plant                      Portsmouth Gaseous Diffusion Plant  
Under contract DE-AC05-98OR22700  
for the  
U.S. DEPARTMENT OF ENERGY



This report is an abridged edition. The following sections have been omitted from this report, but are included in the full report.

OS-08 DMSA ZONE MAP

HP SURVEY DATA

SME INSPECTION / SAMPLING SUMMARY

OREIS CHARACTERIZATION REPORT

RFD FORMS

REUSABLE MATERIAL E-FORMS

D & D CHARACTERIZATION FORMS

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REUSABLE MATERIAL INVENTORY	
D & D INVENTORY	

## ACRONYMS

ACM	Asbestos Containing Material
ADC	Authorized Derivative Classifier
BEF	Equipment Field Blank
D&D	Decontamination and Decommission
DMSA	Department of Energy Material Storage Area
DOE	Department of Energy
ft <sup>2</sup>	Square Feet
ft <sup>3</sup>	Cubic Feet
EPA	Environmental Protection Agency
HP	Health Physics
IH	Industrial Hygiene
lbs	Pounds
Lc	Level Sub C
LLW	Low Level Waste
MDA	Minimum Detectable Activity
MS	Matrix Spike
NCS	Nuclear Criticality Safety
OREIS	Oak Ridge Environmental Information System
OS	Outside
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limits
PGDP	Paducah Gaseous Diffusion Plant
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
RFD	Request for Disposal
RMA	Radioactive Material Area
RPD	Relative Percent Difference
SME	Subject Matter Expert
SVOA	Semi-volatile Organic Analysis
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TIO	Technical Information Officer
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
VOA	Volatile Organic Analysis

## EXECUTIVE SUMMARY

Department of Energy Material Storage Area (DMSA) Outside (OS)-08 is located north of the C-720 Maintenance Facility and east of C-728. This DMSA occupies approximately 3,300 square feet (ft<sup>2</sup>). It is also identified as Solid Waste Management Unit (SWMU) #219. Work activities in this DMSA were initiated in September 2001 and completed in March 2002. Items located in the DMSA consist primarily of three large storage tanks. Two of the tanks are marked as “clean waste oil” and are permanently mounted in a concrete diked area. The third tank is a large fiberglass tank mounted on a semi-trailer. The two waste oil tanks were drained during the characterization project and verified as Resource Conservation and Recovery Act (RCRA) empty. The fiberglass tank had previously been used to collect polychlorinated biphenyl (PCB) contaminated rainwater. It is documented that the tank was drained and cleaned in 1992 in accordance with existing Toxic Substances Control Act (TSCA) requirements (PCB Spill Report No. PCB-243). DMSA OS-08 was initially designated as a Phase 1 DMSA (expected to have no fissionable material but not fully characterized). This DMSA now qualifies as a Phase 3 DMSA since it is fully characterized and has no fissionable material. Nuclear Criticality Safety (NCS) has documented that the tanks and the waste oil from the tanks present no NCS concerns and are NCS exempt (see additional information under the NCS section).

### RCRA/Mixed

Several vehicle lights were removed from the semi-trailer located in the DMSA. The lights were classified as RCRA waste. The oil drained from the oil tanks were characterized as RCRA/Mixed. These materials were labeled handled appropriately and transferred to the C-752-A RCRA permitted storage facility.

### TSCA

There were no TSCA/PCB or asbestos containing material (ACM) identified in this DMSA.

### Solid Waste

During the characterization activities, no solid waste was identified.

### LLW

The portable fiberglass tank and trailer and many of the smaller items in this **DMSA** (plastic, wood, debris) have been characterized as low level waste (LLW). All items of equipment/material were given barcode identification for future inventory control and equipment location/identification. The LLW will remain in the DMSA.

### Reusable Materials

Eight large pieces of polyvinyl chloride (PVC) pipe (–134 ft<sup>3</sup>) were designated as reusable material since they have the potential for future use. They will remain in the DMSA until reuse.

### D&D

Two large metal storage tanks (–7,500 gallons and –4,000 gallons) used for waste oil storage were drained and designated as decontamination and decommission (D&D) items.

### Non-Regulated Water

The concrete dike area holding the two waste oil tanks collected rainwater over a period of time. The water was sampled and characterized. Environmental Compliance personnel evaluated the area and the data and approved discharge of the liquid.

#### NCS

Analytical analysis of the waste oils from the two metal tanks in DMSA OS-08 provided inconsistent and/or insufficient data regarding the weight percent of U235 (assay) in the oils. Nuclear Criticality Safety (NCS) personnel evaluated the data and completed an NCS Anomalous Condition Report (NCS-ACR-PGDP-2002-028, Revision 1) to document there were no NCS concerns pertaining to the oils or tanks. Resampling of the oils provided more definitive data to substantiate that there are no NCS concerns.

#### IH

All Industrial Hygiene (IH) data has been reviewed. All quality control samples were within normal acceptable guidelines, except PCB samples OS08PCBB01, OS08PCBB02, OS08PCBB03, and OS08PCBB04. The four PCB samples were not usable because samples were analyzed after the holding times had expired. No data indicates that personnel were exposed to any airborne concentrations above a permissible exposure limit (PEL) or threshold limit value (TLV).

#### HP

Health Physics (HP) radiological surveys concluded all areas surveyed were less than Level Sub C (Lc). Because Lc is the lowest level of contamination the instruments can detect based on area background, there were no highest or lowest results.

#### Safety

There were no safety related events during the characterization process. All workers had stop work authority to ensure unusual or unexpected events were evaluated before work was allowed to proceed. A Health and Safety Officer was in attendance during all phases of work to evaluate conditions and provide safety related input to the workers.

The actions involved in this characterization activity were documented and have been retained in permanent files. Part of the documentation includes photographs of each equipment item. Some of these photographs are incorporated in this report.



# DMSA OS-8 Light Bulbs Removed as Hazardous Waste

**HAZARDOUS WASTE**

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL  
IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY  
AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERATOR INFORMATION:

NAME US-DOE-PADUCAH GASEOUS DIFFUSION PLANT

ADDRESS P. O. BOX 1410

CITY PADUCAH STATE KY ZIP 42001

EPA ID NO./MANIFEST DOCUMENT NO. KY8890008982

ACCUMULATION START DATE 3/18/02 EPA WASTE NUMBER \_\_\_\_\_

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX \_\_\_\_\_

**HANDLE WITH CARE!**

**DOE**

**WASTE CONTAINER LABEL**

RFD/DRUM NUMBER 112325

CONTENTS (13) VEHICLE LIGHTS.

SOURCE OF WASTE REMOVED FROM RFD# 110482-01

BUILDING OS-8

COMMENTS Total 13; (2) Back-up lights  
AND (11) Side Marker lights.

☐ LIQUID ☒ SOLID ☐ SEMI-SOLID ☐ COMPRESSED GAS

GENERATION DATE 3/18/02

2002 3 18

13



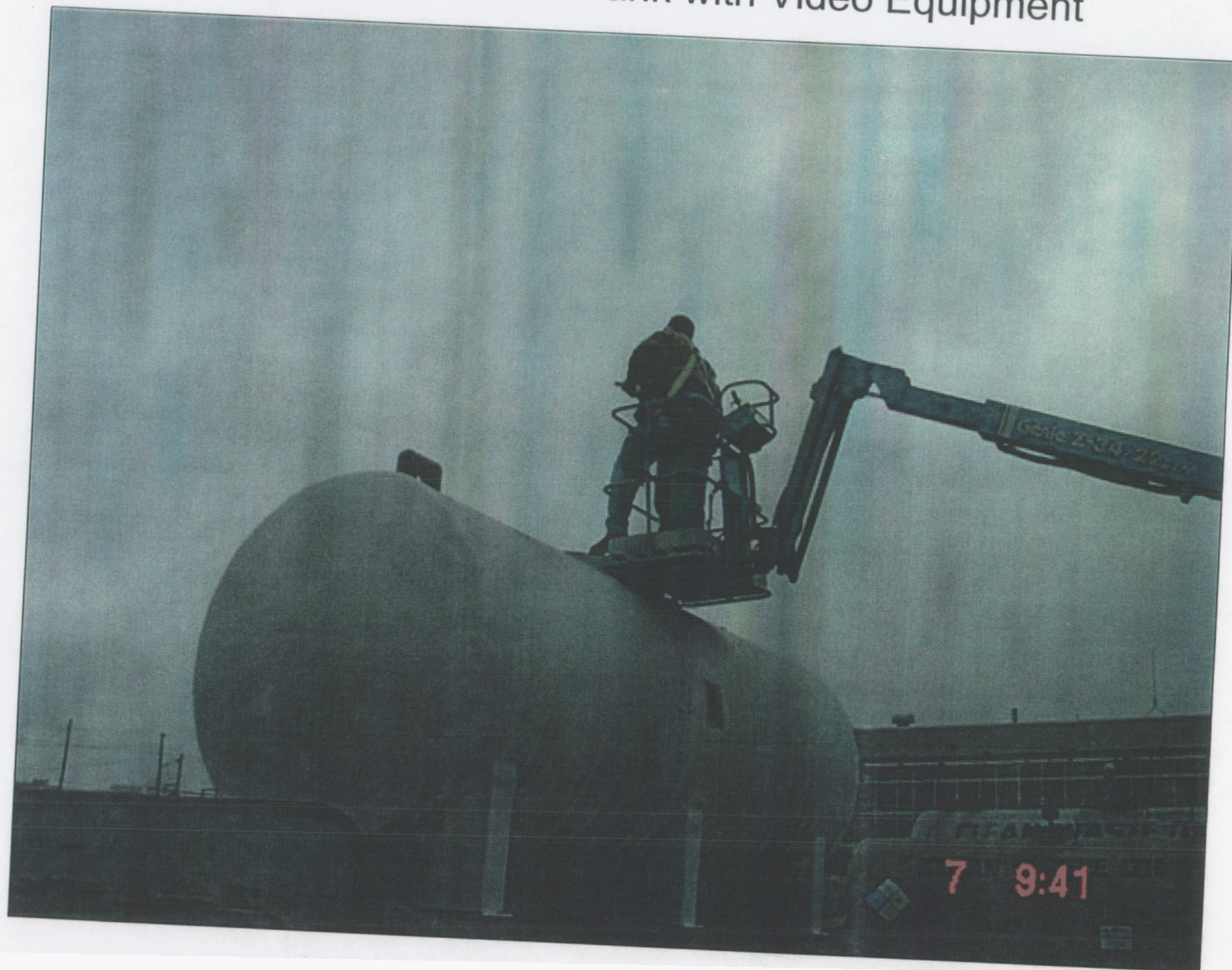
## DMSA OS-8 Tank Being Inspected for RCRA Concerns



14



Observing Inside of Tank with Video Equipment





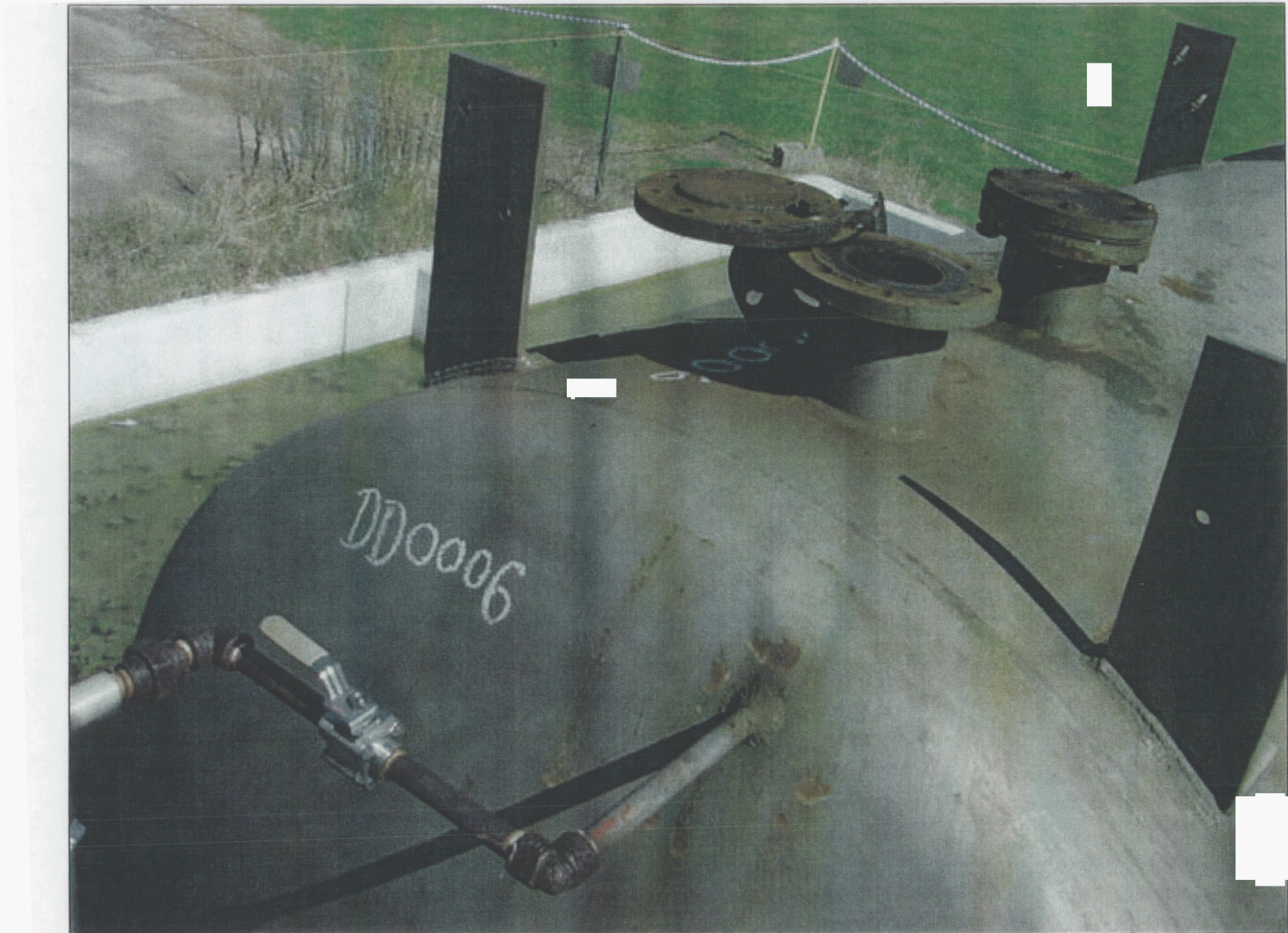
DMSA OS-8 View of Water Trapped Inside Spill Dike



16

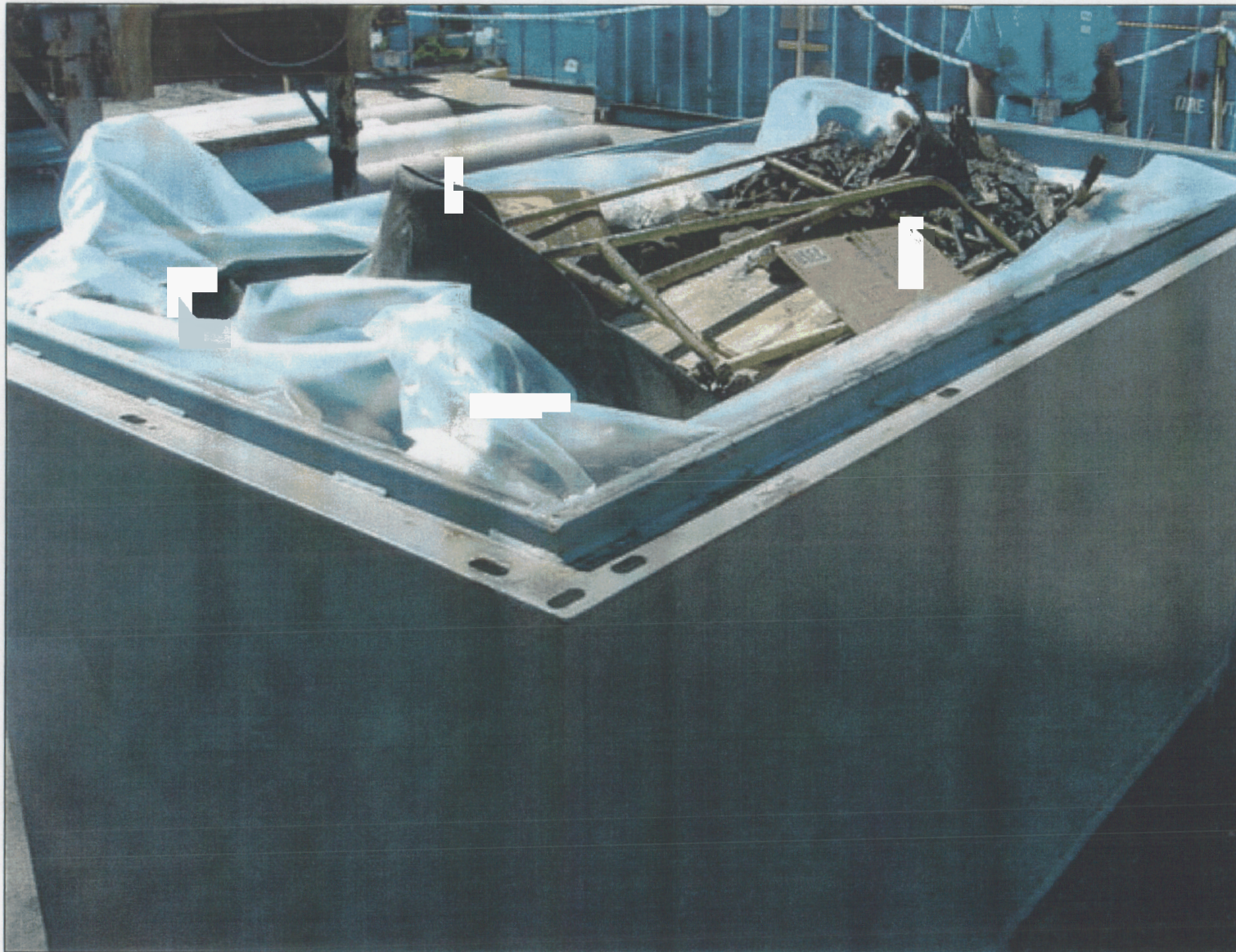


## Tank Flange Opening Used for Inserting Video Equipment to Observe Inside Tank





## DMSA OS-8 Waste Characterized and Packaged



# Inventory And Characterization Report

<i>Curr.</i> <i>Zone</i>	<i>Item ID</i>	<i>Barcode #</i>	<i>Description</i>	<i>Vol.</i> <i>ft3</i>	<i>tsca</i> <i>non</i>	<i>tsca</i> <i>mix</i>	<i>rcra</i> <i>non</i>	<i>rcra</i> <i>mix</i>	<i>llw</i>	<i>asb</i>	<i>fis</i>	<i>Ind</i>	<i>Gen.</i> <i>Date</i>	<i>Char.</i> <i>Date</i>	<i>Transferred</i> <i>To</i>
OS-08															
	110875-01		WATER DISCHARGED	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2/14/02	8/6/02	
	111901-02	PAD02C05208	WASTE OIL FROM TANK DD0006	0.67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/15/01	1/15/01	C-752-A
	111901-01	PAD02C02507	WASTE OIL FROM TANK DD0006	0.67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/15/01	1/15/01	C-752-A
	111902-01	PAD02C05206	WASTE OIL FROM TANK DD0005	0.67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1/15/01	1/15/01	C-752-A
ZONE	112325-01		13 VEHICLE LIGHTS	0.25	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3/18/02	3/18/02	C-752-A
ZONE 8	110480-01	DMSA0110901	PORTABLE FIBERGLASS TANK	1970	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/26/01	9/26/01	
ZONE 8	110481-01	DMSA0110904	WASTE CONTAINER	96	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/26/01	9/26/01	
ZONE 8	110651-01	DMSA0110923	WASTE CONTAINER	96	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9/28/01	9/28/01	
ZONE 8	110652-01	DMSA0110925	CROSS TIE	3	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10/3/01	10/3/01	
ZONE 8	110653-01	DMSA0110926	2 WOODEN SADDLES	4	0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10/3/01	10/3/01	
<i>Summary for OS-08 (10 RFDs)</i>				2771.26	<i>Ft3</i>										
<i>Grand Total (10 RFDs)</i>				2171.26	<i>Total Ft3</i>										

Monday, September 16, 2002

Page 1 of 1

## Legend

asb	Asbestos	Char	Characterization Date	fis	Fissionable
Gen	Generation Date	llw	Low Level Waste	Ind	Landfill
mix	Mixed Waste	rcra	Resource Conservation Recovery Act	tsca	Toxic Substances Control Act

Waste Material	Original RFD #	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft <sup>3</sup> )	Estimated Weight (lbs)	Material Transferred to USEC
Waste Oil	111901	RCRA/Mixed	C-752-A	PAD02C05207 PAD02C05208	2	1.34	39	No
Waste Oil	111902	RCRA/Mixed	C-752-A	PAD02C05206	1	0.67	7	No
(13) Vehicle Lights	112325	RCRA	C-752-A	PAD01C03416	1	0.25	0.50	No

2  
0

## OS-08 DMSA INVENTORY

Description	Original RFD #	Material Classification	Column #	Barcode	# Items	Estimated Volume (ft <sup>3</sup> )	Estimated Weight (lbs)	Material Transferred to USEC
Portable Fiberglass Tank and Trailer	110480	LLW	Zone 8	DMSAOI10901	1	1,970	10,600	No
Waste Container ST 90 - Sheet Plastic and Hypalon	110481	LLW	Zone 8	DMSAOI10904	1	96	2,400	No
Waste Container ST 90	110651	LLW	Zone 8	DMSAOI10923	1	96	3,500	No
Cross Tie (Wood)	110652	LLW	Zone 8	DMSAOI10925	1	3	250	No
(2) Wooden Saddles	110653	LLW	Zone 8	DMSAOI10926	1	4	160	No
Dike Water	110875	Non-Regulated Water	Discharaed	N/A	-	-	-	-
Waste Oil	111901	RCRA/Mixed	C-752-A	PAD02C05207 PAD02C05208	2	1.34	39	No
Waste Oil	111902	RCRA/Mixed	C-752-A	PAD02C05206	1	0.67	7	No
(13) Vehicle Lights	112325	RCRA	C-752-A	PAD01C03416	1	0.25	0.50	NO

**Total Estimated**  
**Volume (ft3)**  
**2,171.26**

**Total Estimated**  
**Weight (lbs)**  
**76,956.50**

## OS-08 REUSABLE MATERIAL INVENTORY

Description	Original E#	Column #	Barcode	# Items	Estimated Volume (ft <sup>3</sup> )	Estimated Weight (lbs)	Material Transferred to USEC
(6) PVC Pipe 16"x20'7"							
(2) PVC Pipe 16"x12'6"	E00171	N/A	DMSA0110924	8	134	300	No

<i>Total Estimated</i>	<i>Total Estimated</i>
<i>Volume (ft<sup>3</sup>)</i>	<i>Weight (lbs)</i>
<b>134</b>	<b>300</b>

22

## OS-08 D&D INVENTORY

Description	Original DD#	Column #	Barcode	# Items	Estimated Volume (ft <sup>3</sup> )	Estimated Weight (lbs)	Material Transferred to USEC
Metal Storage Tank	DD0005	NIA	DMSA01 10902	1	1,000	14,000	No
Metal Storage Tank	DD0006	NIA	DMSAOI 10903	1	535	10,000	No

<i>Total Estimated</i>	<i>Total Estimated</i>
<i>Volume (ft<sup>3</sup>)</i>	<i>Weight (lbs)</i>
<b>7,535</b>	<b>24,000</b>

2  
6